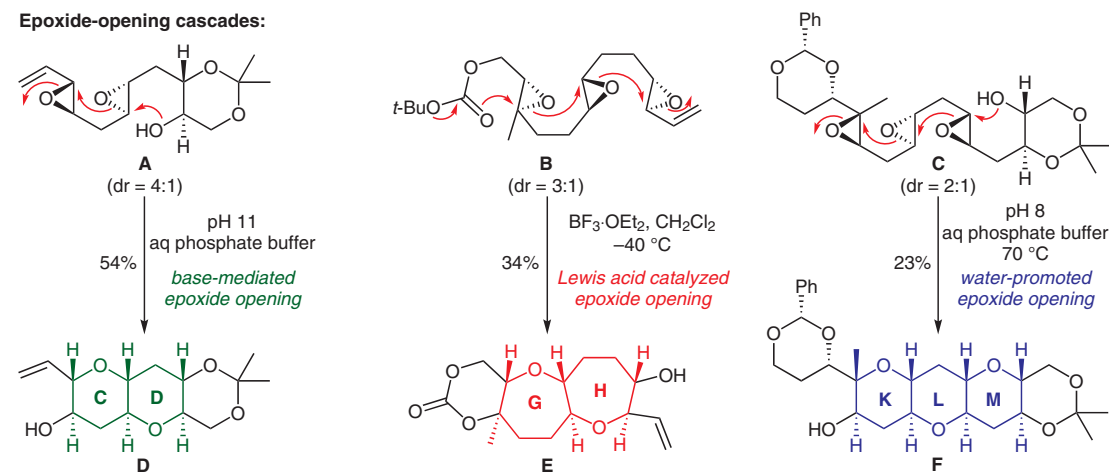


S. SITTIHAN, T. F. JAMISON* (MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, USA)

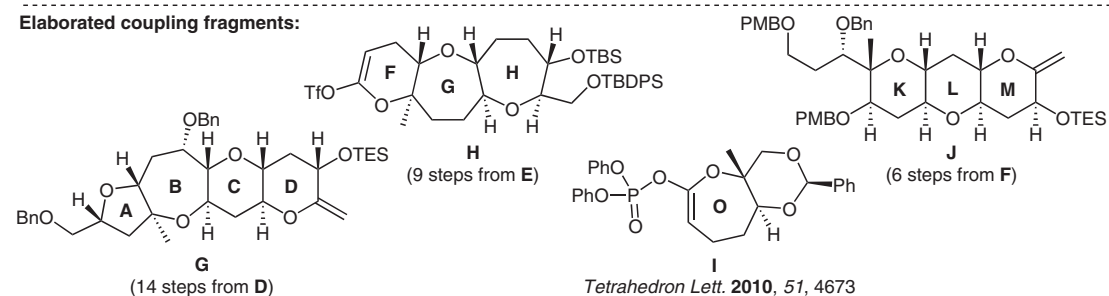
Total Synthesis of the Marine Ladder Polyether Gymnocin B
J. Am. Chem. Soc. **2019**, *141*, 11239–11244.

Total Synthesis of Gymnocin B

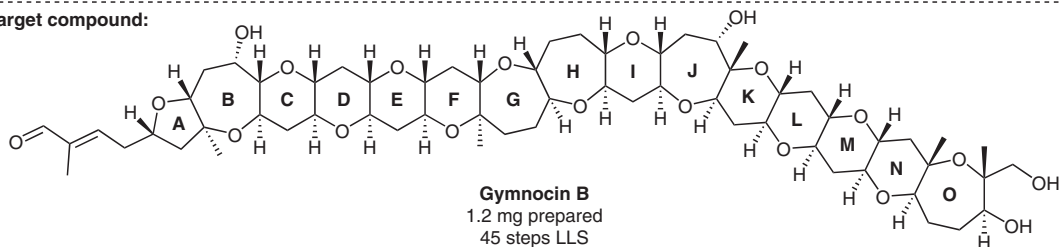
Epoxide-opening cascades:



Elaborated coupling fragments:



Target compound:



Significance: Sittihan and Jamison report the total synthesis of gymnocin B, the second largest contiguous marine ladder polyether isolated to date. This complex target features 15 cyclic ether rings and 33 stereogenic centers, posing an exceptional synthetic challenge. The authors succeeded in the preparation of gymnocin B by implementation of bioinspired epoxide-opening cascades and a series of fragment couplings and cyclizations.

Comment: Key components **D**, **E**, and **F** were prepared from easily accessible compounds by exquisitely controlled epoxide-opening cascades. Further elaboration of these building blocks allowed combination of subunits **G–J** and construction of the remaining rings to afford the exceedingly challenging target gymnocin B.

SYNFACTS Contributors: Erick M. Carreira, Niels Sievertsen
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Category

Synthesis of Natural Products and Potential Drugs

Key words

gymnocin B

marine ladder polyether

epoxide-opening cascade

modular synthesis

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